

WHAT IS CLAIMED IS:

1. A method for producing alkali metal fluorozincate from alkali metal hydroxide, zinc oxide, and alkali metal fluoride or hydrogen fluoride in aqueous phase, wherein:
  - a) to produce fine alkali metal fluorozincate, alkali metal hydroxide and zinc oxide are mixed into a suspension and hydrogen fluoride is added, or
  - b) to produce medium fine alkali metal fluorozincate, hydrogen fluoride and zinc oxide are mixed with one another and alkali metal hydroxide is added, or
  - c) to produce coarse alkali metal fluorozincate, hydrogen fluoride and zinc oxide are mixed with one another and alkali metal fluoride is added.
2. A method according to claim 1, for producing fine alkali metal fluorozincates, wherein alkali metal hydroxide is mixed into a suspension with zinc oxide in aqueous phase, and the suspension is reacted with hydrogen fluoride to form fine alkali metal fluorozincate.
3. A method according to claim 1, wherein the alkali metal hydroxide is potassium hydroxide and potassium fluorozincate is produced.
4. A method according to claim 1, wherein potassium hydroxide is used in the form of as an aqueous potassium hydroxide solution.
5. A method according to claim 3, wherein the atomic ratio of K:Zn is in the range from  $1:1 \pm 0.05$ , and the atomic ratio of (K + Zn):F is in the range from  $1:3 \pm 0.05$ .

6. A method according to claim 1, further comprising isolating and drying the alkali metal fluorozincate produced.
7. A method according to claim 2, wherein the suspension of alkali metal hydroxide and zinc oxide is produced at a temperature in the range from 15 to 85°C, and the suspension subsequently is reacted with hydrogen fluoride at a temperature up to 90°C.
8. A fine alkali metal fluorozincate produced by the method of claim 1, and having a grain spectrum in which 50% of all particles have a diameter < 5 µm.
9. An alkali metal fluorozincate according to claim 8, wherein alkali metal is potassium.
10. A potassium fluorozincate according to claim 9, having a grain spectrum in which 50% of all particles have a diameter < 3.8 µm.
11. A medium fine alkali metal fluorozincate produced by the method of claim 1, and having a grain spectrum in which 50% of all particles have a diameter < 11 µm.
12. A coarse alkali metal fluorozincate produced by the method of claim 1, and having a grain spectrum in which 50% of all particles have a diameter > 11 µm.
13. A method of fluxing an aluminum or aluminum alloy component for brazing, said method comprising applying to said component a fluxing agent comprising an alkali metal fluorozincate according claim 8.

14. A method according to claim 13, wherein said fluxing agent is applied by electrostatic dry fluxing.

15. A method of fluxing an aluminum or aluminum alloy component to be brazed, said method comprising applying to said component a fluxing agent comprising an alkali metal fluorozincate according to claim 11.

16. A method of fluxing an aluminum or aluminum alloy component to be brazed, said method comprising applying to said component a fluxing agent comprising an alkali metal fluorozincate according to claim 12.

17. A method according to claim 16, wherein said fluxing agent is applied by wet fluxing from an aqueous or organic suspension.